0570
0612 ●ECEIVED

JUN 2 1 2001

1653

TECH CENTER 1600/2900

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/768,781

DATE: 05/30/2001
TIME: 15:14:34

ENTERED

Input Set : A:\Seqlist.txt
Output Set: C:\CRF3\05302001\I768781.raw

```
 4 <110> APPLICANT: MERKULOV, Gennady V. et al
 6 <120> TITLE OF INVENTION: ISOLATED HUMAN TRANSPORTER PROTEINS,
 7       NUCLEIC ACID MOLECULES ENCODING HUMAN TRANSPORTER PROTEINS,
 8       AND USES THEREOF
10 <130> FILE REFERENCE: CL001057-CIP
12 <140> CURRENT APPLICATION NUMBER: 09/768,781
13 <141> CURRENT FILING DATE: 2001-01-25
15 <160> NUMBER OF SEQ ID NOS: 7
17 <170> SOFTWARE: FastSEQ for Windows Version 4.0
19 <210> SEQ ID NO: 1
20 <211> LENGTH: 1350
21 <212> TYPE: DNA
22 <213> ORGANISM: Human
24 <400> SEQUENCE: 1
25 atggacagag tttatgaaat tcctgaggag ccaaatgtgg atccggtttc atctctggag 60
26 gaagatgtca tccgtggagc caacccccga tttacttttc catttagcat ccttttctcc 120
27 acctttttgt actgtgggga ggctgcatct gctttgtaca tggttagaat ctatcgaaag 180
28 aatagtgaaa cttaccggat gacatacacc tttttctttct ttatgttttc atccattatg 240
29 gtccagttga ccctcatttt tgtccacaga gatctagcca aagataaacc gctatcatta 300
30 tttatgcatc taatcctctt gggacctgtt atcagatgtt tggaggccat gattaagtac 360
31 ctcacactgt ggaagaaaga ggagcaggag gagccctatg tcagcctcac ccgaaagaag 420
32 atgctaatag atggcgagga ggtgctgata gaatggggag tgggccactc catccggacc 480
33 ctggctatgc accgcaatgc ctacaaacgt atgtcacaga tccaagcctt cctgggctca 540
34 gtgccccagc tgacctatca gctctatgtg agcctgatct ctgcagaggt tcccctgggt 600
35 agagttgtgc taatggtatt ttccctggta tctgtcacct atggggccac cctttgcaat 660
36 atgttggcta tccagatcaa gtacgatgac tacaagattc gccttgggcc actagaagtc 720
37 ctctgcatca ccatctggcg gacattggag atcacttccc gcctcctgat tctggtgctc 780
38 ttctcagcca ctttgaaatt gaaggctgtg cccttcctag tgctcaactt cctgatcatc 840
39 ctctttgagc cctggattaa gttctggaga agtggtgccc agatgcccaa taacattgag 900
40 aaaaacttca gccgggtcgg cactctggtg gtcctgattt cagtcaccat cctctatgct 960
41 ggcatcaact tctcttgctg gtcagctttg cagttgaggt tggcagacag agatctcgtc 1020
42 gacaaagggc agaactgggg acatatgggc ctgcactata gtgtgaggtt ggtagagaat 1080
43 gtgatcatgg tcttggtttt taagttcttt ggagtgaaag tgttactgaa ttactgtcat 1140
44 tccttgattg ccttgcagct cattattgct tatctgattt ccattgactt catgctcctt 1200
45 ttcttccagt acttgcatcc attgcgctca ctcttcaccc ataatgtagt agactacctc 1260
46 cattgtgtct gctgtcacca gcaccctcgg accagggttg agaactcaga gccacccttt 1320
47 gagactgaag caaggcaaag tgttgtctga                                   1350
49 <210> SEQ ID NO: 2
50 <211> LENGTH: 1389
51 <212> TYPE: DNA
52 <213> ORGANISM: Human
54 <400> SEQUENCE: 2
55 atgaacacaa gaccacaaca ttcagaaaga acctcgacaa tggacagagt ttatgaaatt 60
56 cctgaggagc caaatgtgga tccggtttca tctctggagg aagatgtcat ccgtggagcc 120
57 aacccccgat ttactttttcc atttagcatc cttttctcca cctttttgta ctgtggggag 180
58 gctgcatctg ctttgtacat ggttagaatc tatcgaaaga atagtgaaac ttactggatg 240
59 acatacacct ttttctttctt tatgttttca tccattatgg tccagttgac cctcattttt 300
```

RAW SEQUENCE LISTING   DATE: 05/30/2001
PATENT APPLICATION: US/09/768,781   TIME: 15:14:34

Input Set : A:\Seqlist.txt
Output Set: C:\CRF3\05302001\I768781.raw

```
60 gtccacagag atctagccaa agataaaccg ctatcattat ttatgcatct aatcctcttg 360
61 ggacctgtta tcagatgttt ggaggccatg attaagtacc tcacactgtg gaagaaagag 420
62 gagcaggagg agccctatgt cagcctcacc cgaaagaaga tgctaataga tggcgaggag 480
63 gtgctgatag aatgggaggt gggccactcc atccggaccc tggctatgca ccgcaatgcc 540
64 tacaaacgta tgtcacagat ccaagccttc ctgggctcag tgccccagct gacctatcag 600
65 ctctatgtga gcctgatctc tgcagaggtt cccctgggta gagttgtgct aatggtattt 660
66 tccctggtat ctgtcaccta tggggccacc ctttgcaata tgttggctat ccagatcaag 720
67 tacgatgact acaagattcg ccttgggcca ctagaagtcc tctgcatcac catctggcgg 780
68 acattggaga tcacttcccg cctcctgatt ctggtgctct tctcagccac tttgaaattg 840
69 aaggctgtgc ccttcctagt gctcaacttc ctgatcatcc tctttgagcc ctggattaag 900
70 ttctggagaa gtggtgccca gatgcccaat aacattgaga aaaacttcag ccgggtcggc 960
71 actctggtgg tcctgatttc agtcaccatc ctctatgctg gcatcaactt ctcttgctgg 1020
72 tcagctttgc agttgaggtt ggcagacaga gatctcgtcg acaaagggca gaactgggga 1080
73 catatgggcc tgcactatag tgtgaggttg gtagagaatg tgatcatggt cttggttttt 1140
74 aagttctttg gagtgaaagt gttactgaat tactgtcatt ccttgattgc cttgcagctc 1200
75 attattgctt atctgatttc cattggcttc atgctccttt tcttccagta cttgcatcca 1260
76 ttgcgctcac tcttcaccca taatgtagta gactacctcc attgtgtctg ctgtcaccag 1320
77 caccctcgga ccagggttga gaactcagag ccaccctttg agactgaagc aaggcaaagt 1380
78 gttgtctga                                                        1389
80 <210> SEQ ID NO: 3
81 <211> LENGTH: 449
82 <212> TYPE: PRT
83 <213> ORGANISM: Human
85 <400> SEQUENCE: 3
86 Met Asp Arg Val Tyr Glu Ile Pro Glu Glu Pro Asn Val Asp Pro Val
87  1               5                  10                  15
88 Ser Ser Leu Glu Glu Asp Val Ile Arg Gly Ala Asn Pro Arg Phe Thr
89             20                  25                  30
90 Phe Pro Phe Ser Ile Leu Phe Ser Thr Phe Leu Tyr Cys Gly Glu Ala
91         35                  40                  45
92 Ala Ser Ala Leu Tyr Met Val Arg Ile Tyr Arg Lys Asn Ser Glu Thr
93     50                  55                  60
94 Tyr Arg Met Thr Tyr Thr Phe Ser Phe Phe Met Phe Ser Ser Ile Met
95 65                  70                  75                  80
96 Val Gln Leu Thr Leu Ile Phe Val His Arg Asp Leu Ala Lys Asp Lys
97             85                  90                  95
98 Pro Leu Ser Leu Phe Met His Leu Ile Leu Leu Gly Pro Val Ile Arg
99             100                 105                 110
100 Cys Leu Glu Ala Met Ile Lys Tyr Leu Thr Leu Trp Lys Lys Glu Glu
101             115                 120                 125
102 Gln Glu Glu Pro Tyr Val Ser Leu Thr Arg Lys Lys Met Leu Ile Asp
103         130                 135                 140
104 Gly Glu Glu Val Leu Ile Glu Trp Glu Val Gly His Ser Ile Arg Thr
105 145                 150                 155                 160
106 Leu Ala Met His Arg Asn Ala Tyr Lys Arg Met Ser Gln Ile Gln Ala
107             165                 170                 175
108 Phe Leu Gly Ser Val Pro Gln Leu Thr Tyr Gln Leu Tyr Val Ser Leu
109             180                 185                 190
110 Ile Ser Ala Glu Val Pro Leu Gly Arg Val Val Leu Met Val Phe Ser
```

```
111         195              200              205
112 Leu Val Ser Val Thr Tyr Gly Ala Thr Leu Cys Asn Met Leu Ala Ile
113     210              215          220
114 Gln Ile Lys Tyr Asp Asp Tyr Lys Ile Arg Leu Gly Pro Leu Glu Val
115 225             230              235          240
116 Leu Cys Ile Thr Ile Trp Arg Thr Leu Glu Ile Thr Ser Arg Leu Leu
117             245              250          255
118 Ile Leu Val Leu Phe Ser Ala Thr Leu Lys Leu Lys Ala Val Pro Phe
119         260              265          270
120 Leu Val Leu Asn Phe Leu Ile Ile Leu Phe Glu Pro Trp Ile Lys Phe
121         275              280          285
122 Trp Arg Ser Gly Ala Gln Met Pro Asn Asn Ile Glu Lys Asn Phe Ser
123     290              295          300
124 Arg Val Gly Thr Leu Val Val Leu Ile Ser Val Thr Ile Leu Tyr Ala
125 305             310              315          320
126 Gly Ile Asn Phe Ser Cys Trp Ser Ala Leu Gln Leu Arg Leu Ala Asp
127             325              330          335
128 Arg Asp Leu Val Asp Lys Gly Gln Asn Trp Gly His Met Gly Leu His
129         340              345          350
130 Tyr Ser Val Arg Leu Val Glu Asn Val Ile Met Val Leu Val Phe Lys
131     355              360          365
132 Phe Phe Gly Val Lys Val Leu Leu Asn Tyr Cys His Ser Leu Ile Ala
133     370              375          380
134 Leu Gln Leu Ile Ile Ala Tyr Leu Ile Ser Ile Asp Phe Met Leu Leu
135 385             390              395          400
136 Phe Phe Gln Tyr Leu His Pro Leu Arg Ser Leu Phe Thr His Asn Val
137             405              410          415
138 Val Asp Tyr Leu His Cys Val Cys Cys His Gln His Pro Arg Thr Arg
139         420              425          430
140 Val Glu Asn Ser Glu Pro Pro Phe Glu Thr Glu Ala Arg Gln Ser Val
141         435              440          445
142 Val
146 <210> SEQ ID NO: 4
147 <211> LENGTH: 462
148 <212> TYPE: PRT
149 <213> ORGANISM: Human
151 <400> SEQUENCE: 4
152 Met Asn Thr Arg Pro Gln His Ser Glu Arg Thr Ser Thr Met Asp Arg
153 1           5                10               15
154 Val Tyr Glu Ile Pro Glu Glu Pro Asn Val Asp Pro Val Ser Ser Leu
155         20               25               30
156 Glu Glu Asp Val Ile Arg Gly Ala Asn Pro Arg Phe Thr Phe Pro Phe
157         35               40               45
158 Ser Ile Leu Phe Ser Thr Phe Leu Tyr Cys Gly Glu Ala Ala Ser Ala
159     50               55               60
160 Leu Tyr Met Val Arg Ile Tyr Arg Lys Asn Ser Glu Thr Tyr Trp Met
161 65               70               75               80
162 Thr Tyr Thr Phe Ser Phe Phe Met Phe Ser Ser Ile Met Val Gln Leu
163             85               90               95
```

RAW SEQUENCE LISTING   DATE: 05/30/2001
PATENT APPLICATION: US/09/768,781   TIME: 15:14:34

Input Set : A:\Seqlist.txt
Output Set: C:\CRF3\05302001\I768781.raw

```
164 Thr Leu Ile Phe Val His Arg Asp Leu Ala Lys Asp Lys Pro Leu Ser
165             100             105             110
166 Leu Phe Met His Leu Ile Leu Leu Gly Pro Val Ile Arg Cys Leu Glu
167         115             120             125
168 Ala Met Ile Lys Tyr Leu Thr Leu Trp Lys Lys Glu Glu Gln Glu Glu
169     130             135             140
170 Pro Tyr Val Ser Leu Thr Arg Lys Lys Met Leu Ile Asp Gly Glu Glu
171 145             150             155             160
172 Val Leu Ile Glu Trp Glu Val Gly His Ser Ile Arg Thr Leu Ala Met
173             165             170             175
174 His Arg Asn Ala Tyr Lys Arg Met Ser Gln Ile Gln Ala Phe Leu Gly
175             180             185             190
176 Ser Val Pro Gln Leu Thr Tyr Gln Leu Tyr Val Ser Leu Ile Ser Ala
177         195             200             205
178 Glu Val Pro Leu Gly Arg Val Val Leu Met Val Phe Ser Leu Val Ser
179     210             215             220
180 Val Thr Tyr Gly Ala Thr Leu Cys Asn Met Leu Ala Ile Gln Ile Lys
181 225             230             235             240
182 Tyr Asp Asp Tyr Lys Ile Arg Leu Gly Pro Leu Glu Val Leu Cys Ile
183             245             250             255
184 Thr Ile Trp Arg Thr Leu Glu Ile Thr Ser Arg Leu Leu Ile Leu Val
185             260             265             270
186 Leu Phe Ser Ala Thr Leu Lys Leu Lys Ala Val Pro Phe Leu Val Leu
187         275             280             285
188 Asn Phe Leu Ile Ile Leu Phe Glu Pro Trp Ile Lys Phe Trp Arg Ser
189     290             295             300
190 Gly Ala Gln Met Pro Asn Asn Ile Glu Lys Asn Phe Ser Arg Val Gly
191 305             310             315             320
192 Thr Leu Val Val Leu Ile Ser Val Thr Ile Leu Tyr Ala Gly Ile Asn
193             325             330             335
194 Phe Ser Cys Trp Ser Ala Leu Gln Leu Arg Leu Ala Asp Arg Asp Leu
195         340             345             350
196 Val Asp Lys Gly Gln Asn Trp Gly His Met Gly Leu His Tyr Ser Val
197         355             360             365
198 Arg Leu Val Glu Asn Val Ile Met Val Leu Val Phe Lys Phe Phe Gly
199     370             375             380
200 Val Lys Val Leu Leu Asn Tyr Cys His Ser Leu Ile Ala Leu Gln Leu
201 385             390             395             400
202 Ile Ile Ala Tyr Leu Ile Ser Ile Gly Phe Met Leu Leu Phe Phe Gln
203             405             410             415
204 Tyr Leu His Pro Leu Arg Ser Leu Phe Thr His Asn Val Val Asp Tyr
205         420             425             430
206 Leu His Cys Val Cys Cys His Gln His Pro Arg Thr Arg Val Glu Asn
207         435             440             445
208 Ser Glu Pro Pro Phe Glu Thr Glu Ala Arg Gln Ser Val Val
209     450             455             460
212 <210> SEQ ID NO: 5
213 <211> LENGTH: 17993
214 <212> TYPE: DNA
```

RAW SEQUENCE LISTING   DATE: 05/30/2001
PATENT APPLICATION: US/09/768,781   TIME: 15:14:34

Input Set : A:\Seqlist.txt
Output Set: C:\CRF3\05302001\I768781.raw

```
215 <213> ORGANISM: Human
217 <220> FEATURE:
218 <221> NAME/KEY: misc_feature
219 <222> LOCATION: (1)...(17993)
220 <223> OTHER INFORMATION: n = A,T,C or G
222 <400> SEQUENCE: 5
223 tattattatt attattaaga cgtaatcttg ctctgttgcc caggctggag tgcagtggcg 60
224 tgatctcagc tcactgcaac ctctgccgtc cgggttcaag tttttctcct gcctcagcct 120
225 cctgagtagc tgggattaca gtcacgcacc accacgacca gctgattttt gtatttttag 180
226 tagagatggg gtttcaccac gttggccagg ctggtttcga actcctgacc tcaagtgatc 240
227 tgcctgcctc agcctcccaa agtgctggga ttacaggcgt gaaccactgt gcctggcctt 300
228 catctatatt attaccagga ggcagatgtg ttctcttttt ctctgaggtt tagaattatg 360
229 caaatgaaga tatgaaaaca aaagctcagt gaggtgggga ggattacact taagaataca 420
230 ggtaattttc aaagctcttt aagacacccc tctcagtttt tactaacagc tctctcttgg 480
231 ctctttgcca gtctgtttag aatttggcac ctcttcataa cctttcaacc aaagacctgt 540
232 aagttcattc taaagctcct atcctggcct cattttgcaa gtggagaaat caaggcataa 600
233 aatatgagct ttcagtgtct gtgggctgac cttgagtctt gacctttatc ctgttctatc 660
234 ttccctccgc cgaaaactct gaccctattc ctcccaggtt ccccccttcat gatattatct 720
235 ggagggcaat aggacctagg gaggttccac cctgcggcgg agggagacac acctgcctaa 780
236 cagcgtgggt agagtgagtg ttgaagcaag tcacttaact agttagggag ggcggggtag 840
237 aagtgggggc ctgctgctcc tagggaggag taaagctgtg gctcctgcct gggtctggag 900
238 gtggtggtca gaagtgcttc tgaagagcgg cccaagcccc tttttgtccc gccactccac 960
239 aacgagcatc cctcggctgg ccgcctgccc gggaactctc cggctggttt tgtttggccg 1020
240 cagccgtccc gcccatctcg cccgcccccg ccgtcccggt gccttagttt ttgaagctgc 1080
241 cgacctctcg cagctggaat cgcagaccag gcaggaccct ggcagcagac ggcgtccaag 1140
242 agtttggcga cctccgtcca gccaggttgg cgccccgcac atcgtgcctc tcactagcaa 1200
243 agtttctccg aggagaagca gcccctccag ccttttcttc atcctgtaga gcgagcgcgc 1260
244 tctgcttctg tccctcaaca ctgcattcgg agacagggtg gtgacaatac tccactcccg 1320
245 ggccaggcgg tcttgggggc ggggcttggg ggaatccgag gagctatcct gagaaccctg 1380
246 gactcggcaa aggtcctgag agcgcgcagg tgagcgggcc agctgatagc tacagcctag 1440
247 caatagctag gatacctagg cactgaactg aatcccctct tctgccctcc ttcttctgcg 1500
248 cccgctcttc tgccctggct cagctctccg ctgacttgag aggacacact ggtcaggact 1560
249 ctttgtgagg agctgctgag tgtcggtgcc cccgacagat cggctacacc ctgcctgagg 1620
250 ggctgcgaaa ggagccgcca cggaagccgc tgttctcatg actcttcacg tccctggagt 1680
251 tggactctgg atggggcgct gggatgcttg cttttgtctt gttcaagttt cacagcaagt 1740
252 atgttgacga ttggaatcgg ggccaatcaa gagtcaagtt caaagtggta ctcctgggct 1800
253 ttccatccca gactccaagt cgaatctgag tctagaagag agcggtttct tgctctaact 1860
254 agtgaatctc tgttcccaaa ctggacttga cagagctctc ctcacctata cttggactgt 1920
255 agcggccata gggttctctt ggggatgggt gggagggtgc tatgaacaca agaccacaac 1980
256 attcagaaag aacctcgaca atggacagag tttatgaaat tcctgaggag ccaaatgtgg 2040
257 atccggtttc atctctggag gaagatgtca tccgtggagc caacccccga tttactttc 2100
258 catttagcat ccttttctcc acctttttgt actgtgggga ggctgcatct gctttgtaca 2160
259 tggttagaat ctatcgaaag aatagtgaaa cttactggat gacatacacc ttttctttct 2220
260 ttatgttttc atccattatg gtccagttga ccctcatttt tgtccacaga gatctagcca 2280
261 aagataaacc gctatcatta tttatgcatc taatcctctt gggacctgtt atcaggtgag 2340
262 caacttttaa atcttttcct taccccccta accccacccc agacttgggc agagaaagat 2400
263 gaaagattta caagatggat actatggctc taatcaattc tctcatttcc tcccactctc 2460
264 ggcttccctg tctaccattc agaaaactta cctgaaatct taaatgccac catgatgaac 2520
265 atgtggtatg tacttgtgtt ccaaaacaat gaacgatgct atttgggctg tgtaaactag 2580
```

VERIFICATION SUMMARY   DATE: 05/30/2001
PATENT APPLICATION: **US/09/768,781**   TIME: 15:14:35

Input Set : **A:\Seqlist.txt**
Output Set: **C:\CRF3\05302001\I768781.raw**

L:509 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5
L:510 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5